SINGLE SUPPLY HI-SLEW RATE DUAL OPERATIONAL AMPLIFER

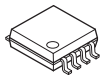
■GENERAL DESCRIPTION

The NJM2717 is a high slew rate single supply dual operational amplifier. It offers excellent features of a 40V/us (typ.) high slew rate in a single supply and low operating voltage from 2.7V, which provide a benefit to buffer, filter and ground level signal detection circuit design. Therefore The NJM2717 is suitable for CCD buffer and AD/DA converter buffer using in facsimile/scanner, current detector in inverter controller, PWM motor controller and Tuner/Communication devices.

The NJM2717 is available in a wide variety packages 8-lead DIP, and 8-lead surface-mount packages of SOP (DMP), SSOP and MSOP (TVSP).

■ PACKAGE OUTLINE

NJM2717D
(DIP8)



NJM2717M
(DMP8)

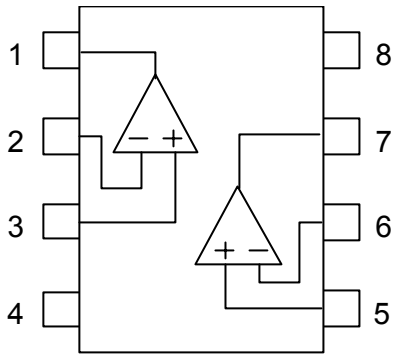
NJM2717V
(SSOP8)

NJM2717RB1
(MSOP8 (TVSP8))

■ FEATURES

- ●Single Supply
- ●Operating Voltage 2.7V to 12V
- ●High Slew Rate 40V/μs Typ. (at V+=5V)
- ●Operating Current 8mA typ. (at V^+=5V)
- ●Output Voltage Range V_{OH} ≥4.5V Typ. (at V^+=5V, R_L=4kΩ)
  V_{OL} ≤0.05V Typ. (at V^+=5V, R_L=4kΩ)
- ●Bipolar Technology
- ●Package Outline DIP8,
  DMP8,
  SSOP8,
  MSOP8 (TVSP8) MEET JEDEC MO-187-DA / THIN TYPE

■ PIN CONFIGRATION



NJM2717D
NJM2717M
NJM2717V
NJM2717RB1
(Top View)

PIN FUNCTION
1. A OUTPUT
2. A -INPUT
3. A +INPUT
4. GND
5. B +INPUT
6. B –INPUT
7. B OUTPUT
8. V^+

■ ABSOLUTE MAXIMUM RATINGS (Ta=25˚C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	15.0	V
Differential Input Voltage	V_{ID}	± 3	V
Input Common Mode Voltage Range	V_{ICM}	-0.3 to +15.0(Note 1)	V
Power Dissipation	P_D	(DIP8) 500 (DMP8) 300 (SSOP8) 250 (MSOP8 (TVSP8)) 320	mW
Output Sink Current	I_{SINK}	10	mA
Operating Temperature Range	T_{opr}	-40 to +85	˚C
Storage Temperature Range	T_{stg}	-40 to +125	˚C

(Note 1) For supply voltage less than 15V, the absolute maximum input voltage is equal to the supply voltage.

■ RECOMMENDED OPERATING CONDITION (Ta=25˚C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V^+	2.7 to 12.0	V

■ ELECTRICAL CHARACTERISTICS

●DC CHARACTERISTICS (V^+=5V,Ta=25˚C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Operating Current	I_{CC}	R_L=∞, no signal	-	8.0	11.0	mA
Input Offset Voltage	V_{IO}	R_S=0Ω	-	1	11	mV
Input Bias Current	I_B		-	2	4.4	μA
Input Offset Current	I_{IO}		-	0.2	0.5	μA
Voltage Gain	A_V	R_L ≥ 10kΩ, V_O=1.5V to 3.5V	60	75	-	dB
Common Mode Rejection Ratio	CMR	0V ≤ V_{CM} ≤ 3.8V	45	80	-	dB
Supply Voltage Rejection Ratio	SVR	V^+=4V to 8V	50	85	-	dB
Output Voltage 1	$V_{OH}1$	R_L=4kΩ to GND	4.3	4.5	-	V
	$V_{OL}1$		-	0.05	0.1	V
Output Voltage 2	$V_{OH}2$	R_L=4kΩ to 2.5V	4.5	4.7	-	V
	$V_{OL}2$		-	0.1	0.5	V
Output Source Current	I_{SOURCE}		1	2.5	-	mA
Output Sink Current	I_{SINK}		2.5	6	-	mA
Input Common Mode Voltage Range	V_{ICM}		0 to 3.8	-	-	V

●AC CHARACTERISTICS (V^+=5V,Ta=25˚C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Unity Gain Bandwidth	f_T		-	20	-	MHz

●TRANSIENT CHARACTERISTICS (V^+=5V,Ta=25˚C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Slew Rate	SR		-	40	-	V/μs

■ ELECTRICAL CHARACTERISTICS

●DC CHARACTERISTICS (V^+=12V,Ta=25˚C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Operating Current	I_{CC}	R_L=∞, no signal	-	10.0	14.5	mA
Input Offset Voltage	V_{IO}	R_S=0Ω	-	1	12	mV
Input Bias Current	I_B		-	2.1	4.4	μA
Input Offset Current	I_{IO}		-	0.2	1	μA
Voltage Gain	A_V	R_L ≥ 10kΩ, V_O=2V to 10V	60	80	-	dB
Common Mode Rejection Ratio	CMR	0V ≤ V_{CM} ≤ 10.8V	45	80	-	dB
Supply Voltage Rejection Ratio	SVR	V^+=8V to 12V	50	85	-	dB
Output Voltage 1	V_{OH}1	R_L=10kΩ to GND	11.3	11.5	-	V
	V_{OL}1		-	0.1	0.3	V
Output Voltage 2	V_{OH}2	R_L=10kΩ to 6V	11.5	11.7	-	V
	V_{OL}2		-	0.1	0.5	V
Output Source Current	I_{SOURCE}		1	3	-	mA
Output Sink Current	I_{SINK}		2.5	8	-	mA
Input Common Mode Voltage Range	V_{ICM}		0 to 10.8	-	-	V

●AC CHARACTERISTICS (V^+=12V,Ta=25˚C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Unity Gain Bandwidth	f_T		-	21	-	MHz

●TRANSIENT CHARACTERISTICS (V^+=12V,Ta=25˚C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Slew Rate	SR		-	45	-	V/μs

■ ELECTRICAL CHARACTERISTICS

●DC CHARACTERISTICS (V^+=2.7V,Ta=25˚C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Operating Current	I_{CC}	R_L=∞, no signal	-	6	8.5	mA
Input Offset Voltage	V_{IO}	R_S=0Ω	-	1	10	mV
Input Bias Current	I_B		-	1.7	4.4	μA
Input Offset Current	I_{IO}		-	0.2	0.5	μA
Voltage Gain	A_V	R_L ≥10kΩ, V_O=0.85V to 1.85V	60	73	-	dB
Common Mode Rejection Ratio	CMR	0V ≤ V_{CM} ≤ 1.5V	45	80	-	dB
Supply Voltage Rejection Ratio	SVR	V^+=2.7V to 4V	50	75	-	dB
Output Voltage 1	$V_{OH}1$	R_L=4kΩto GND	2.5	2.6	-	V
	$V_{OL}1$		-	0.05	0.1	V
Output Voltage 2	$V_{OH}2$	R_L=4kΩto 1.35V	2.6	2.65	-	V
	$V_{OL}2$		-	0.1	0.2	V
Output Source Current	I_{SOURCE}		1	2.5	-	mA
Output Sink Current	I_{SINK}		2.5	5	-	mA
Input Common Mode Voltage Range	V_{ICM}		0 to 1.5	-	-	V

●AC CHARACTERISTICS (V^+=2.7V,Ta=25˚C)

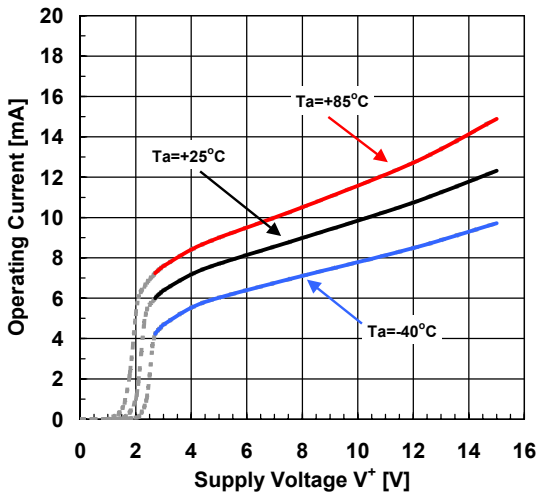
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Unity Gain Bandwidth	f_T		-	19	-	MHz

●TRANSIENT CHARACTERISTICS (V^+=2.7V,Ta=25˚C)

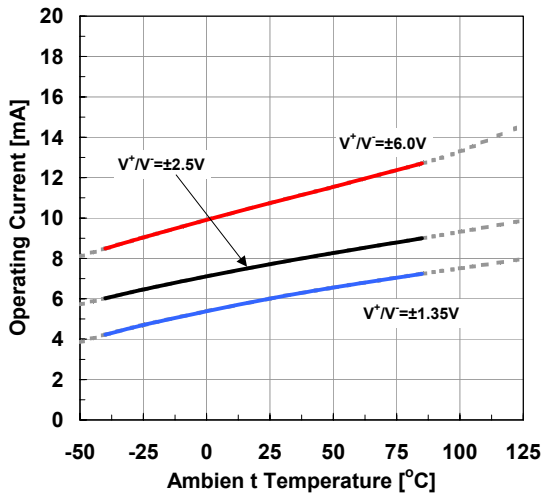
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Slew Rate	SR		-	30	-	V/μs

■ Typical Characteristics

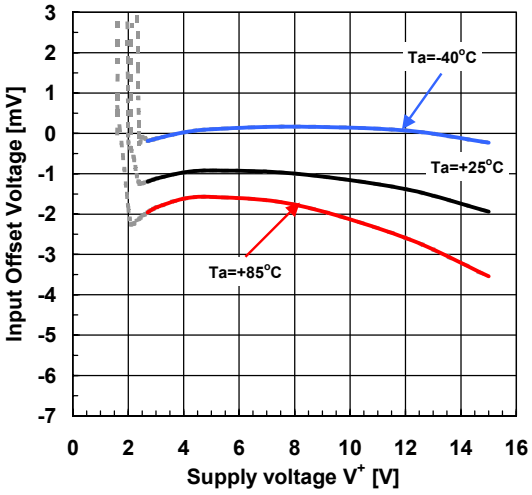
Operating Current vs. Supply Voltage



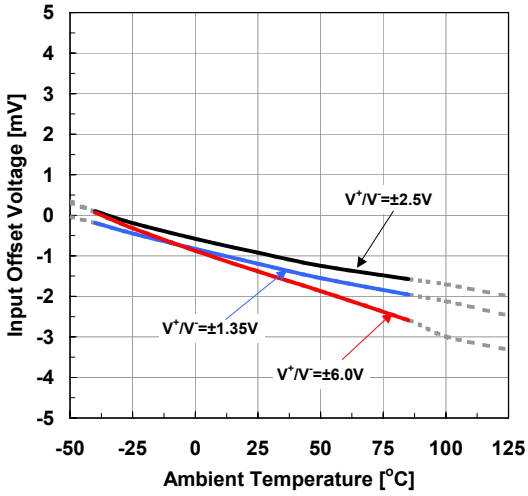
Operating Current vs. Ambient temperature



Input Offset Voltage vs. Supply Voltage

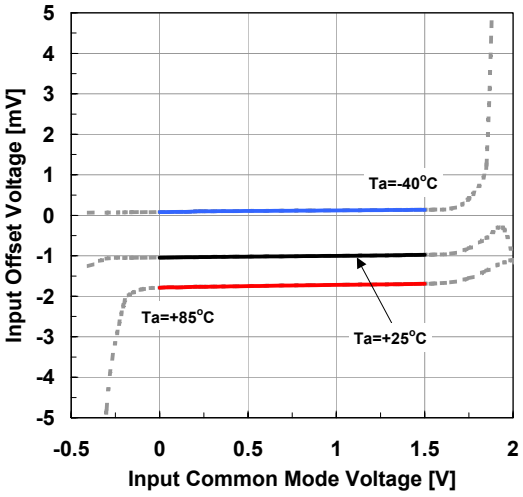


Input Offset Voltage vs. Ambient Tmperature

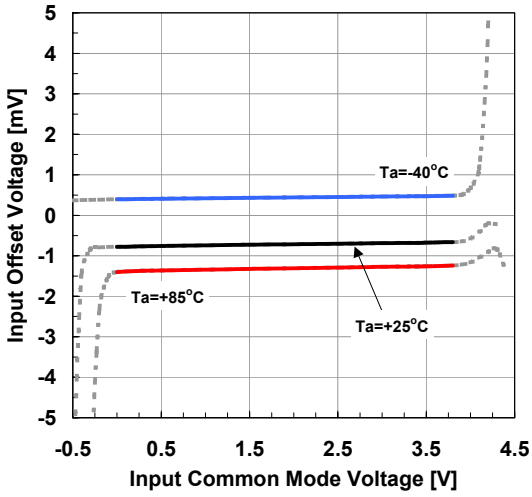


■ Typical Characteristics

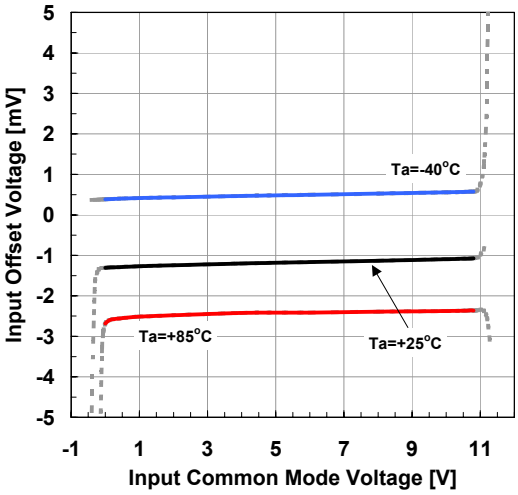
Input Offset Voltage
vs. Input Common Mode VItage
V^+/V^-=±1.35V



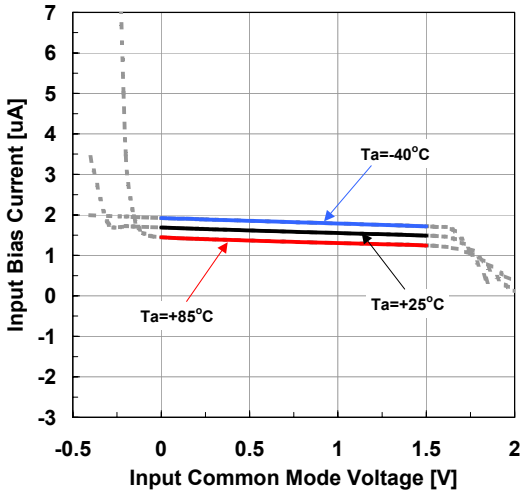
Input Offset Voltage
vs. Input Common Mode Voltage
V^+/V^-=±2.5V



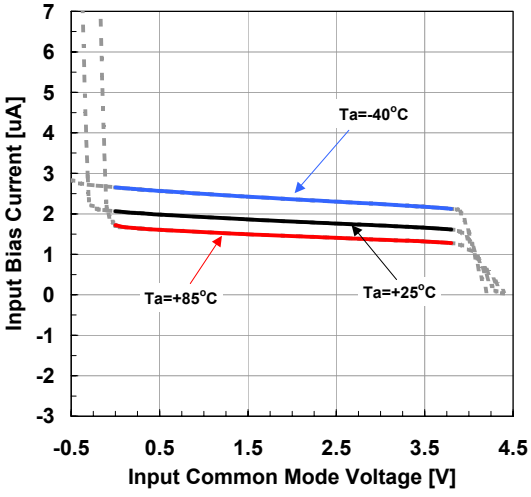
Input Offset Voltage
vs. Input Common Mode Voltage Range
V^+/V^-=±6.0V



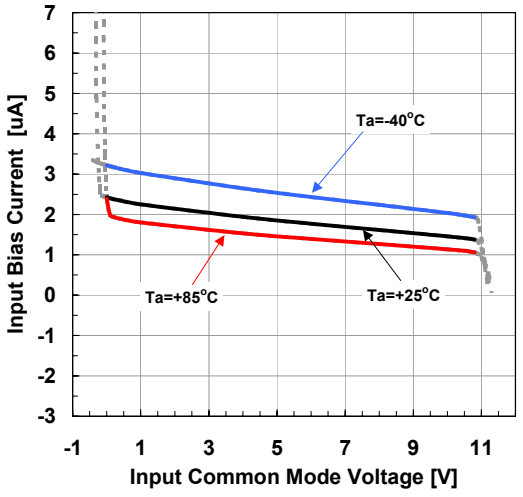
Input Bias Current
vs. Input Common Mode Voltage
V^+/V^-=±1.35V



Input Bias Current
vs. Input Common Mode Voltage
V^+/V^-=±2.5V

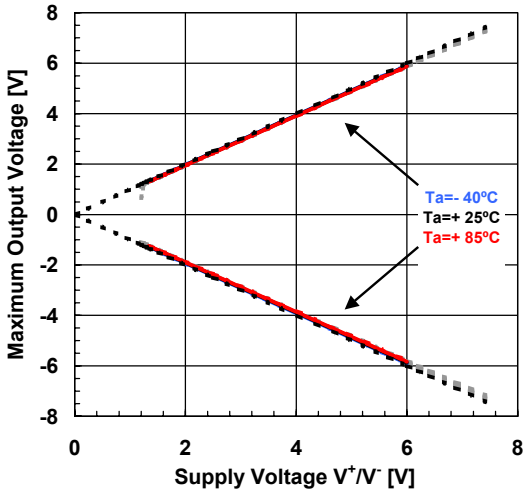


Input Bias Current
vs. Input Common Mode Voltage
V^+/V^-=±6.0V

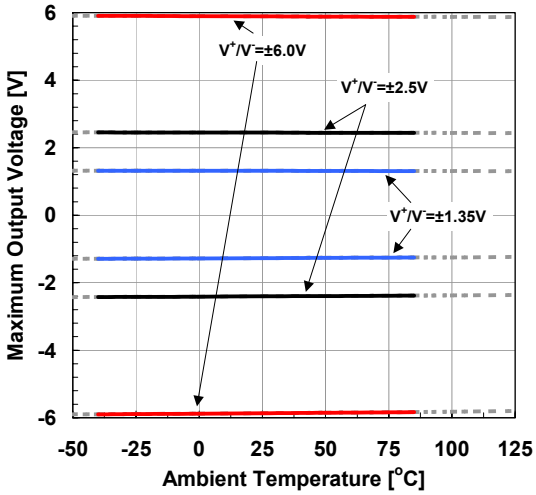


■ Typical Characteristics

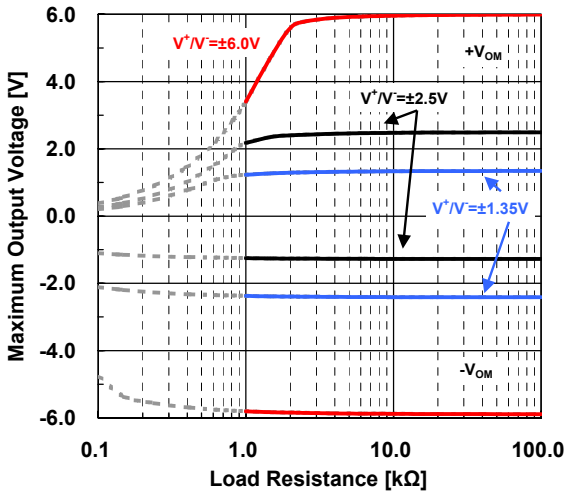
Maximum Output Voltage vs. Supply Voltage
G_V=OPEN, R_L=4kΩ



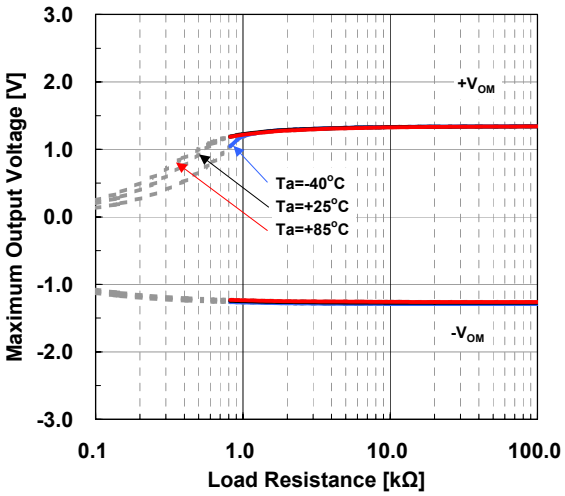
Maximum Output Voltage
vs. Ambient Temperature
G_V=OPEN,RL=4KΩ



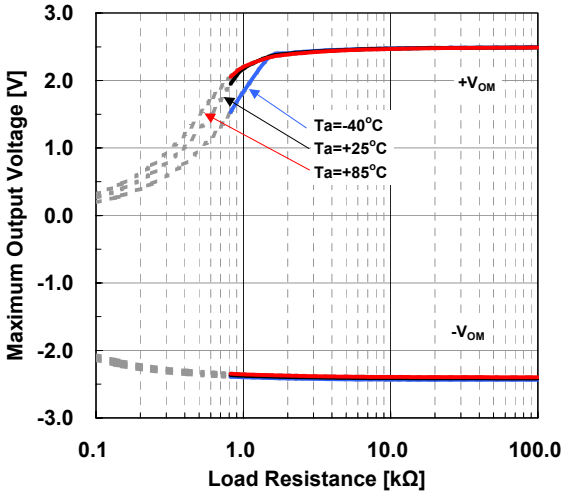
Maximum Output Voltage
vs. Load Resistance
G_V=OPEN, Ta=+25°C



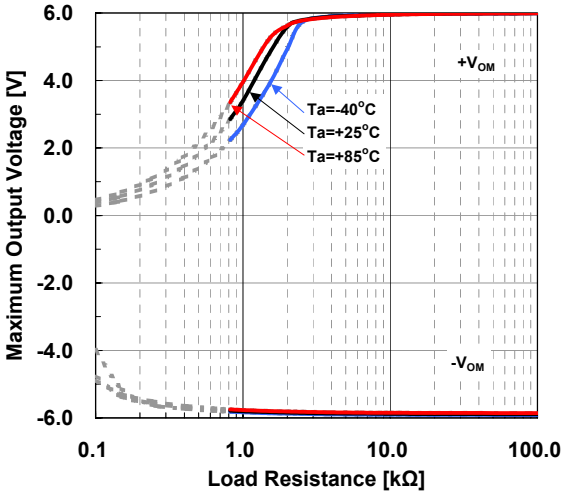
Maximum Output Voltage
vs. Load Resistance
V^+/V^-=±1.35V, G_V=OPEN



Maximum Output Voltage
vs. Load Resistance
V^+/V^-=±2.5V, G_V=OPEN

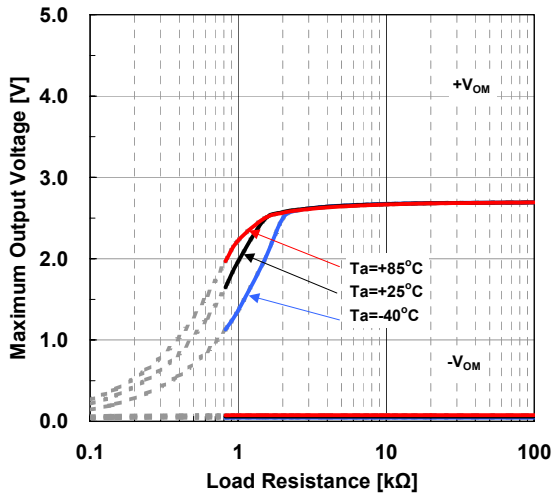


Maximum Output voltage
vs. Load Resistance
V^+/V^-=±6.0V, G_V=OPEN

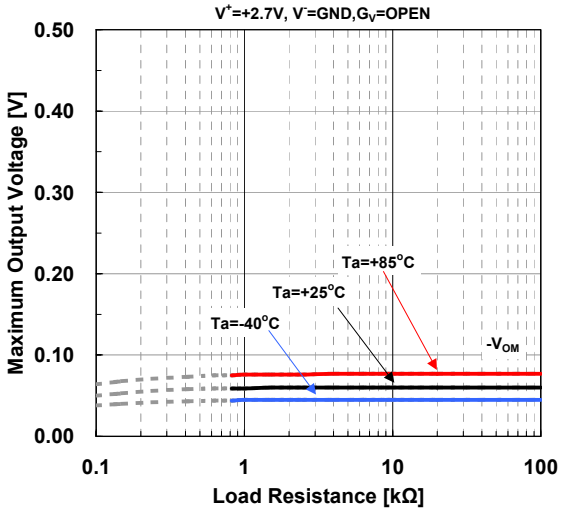


■ Typical Characteristics

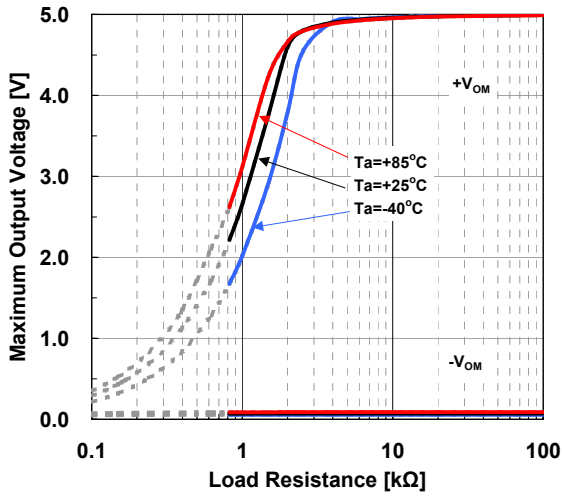
Maximum Output Voltage vs. Load Resistance
V^+=+2.7V,V^-=GND,G_V=OPEN



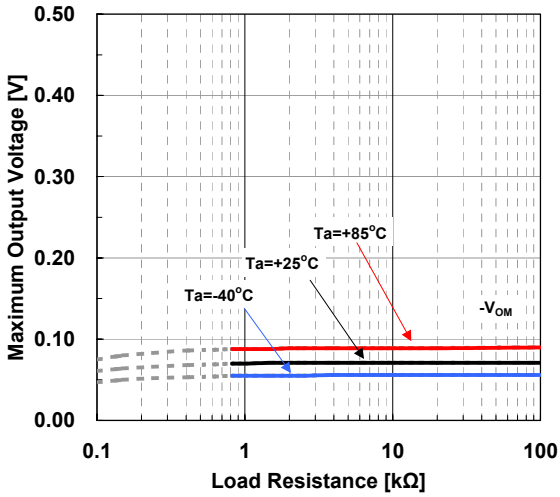
Maximum Output Voltage vs. Load Resistance
V^+=+2.7V, V^-=GND,G_V=OPEN



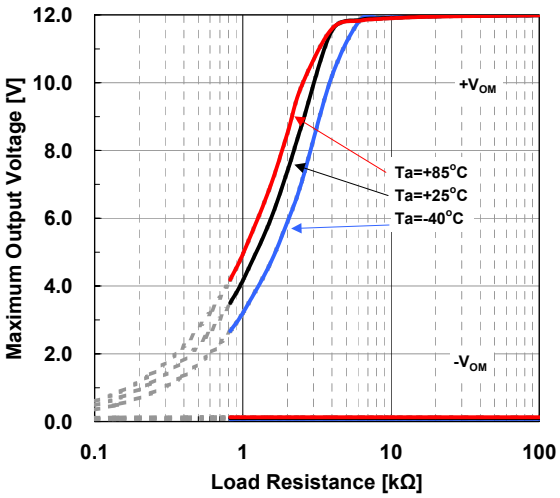
Maximum Output Voltage vs. Load Resistance
V^+=+5.0V, V^-=GND,G_V=OPEN



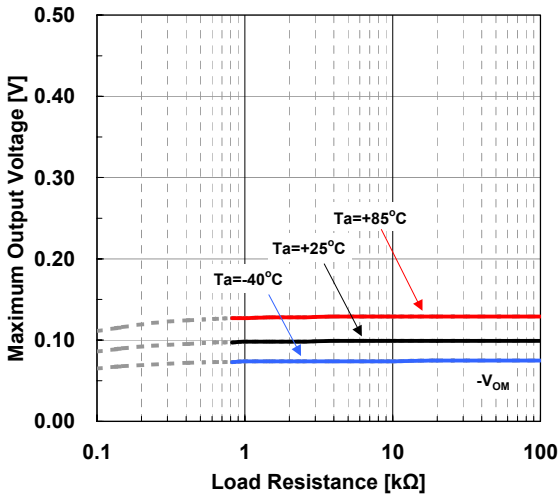
Maximum Output Voltage vs. Load Resistance
V^+=+5.0V, V^-=GND, G_V=OPEN



Maximum Output Voltage vs. Load Resistance
V^+=+12.0V,V^-=GND, G_V=OPEN



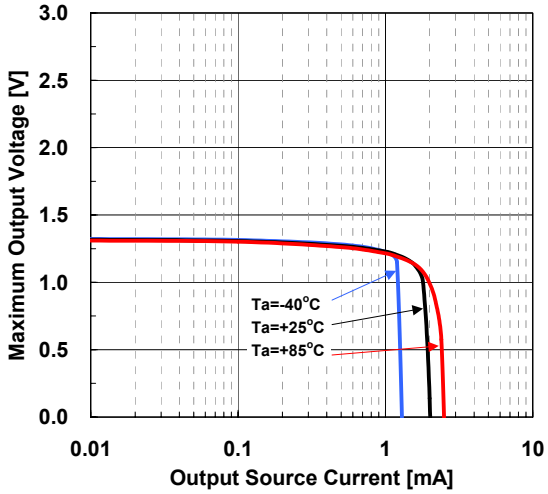
Maximum Output Voltage vs. Load Resistance
V^+=+12.0V, V^-=GND, G_V=OPEN



■ Typical Characteristics

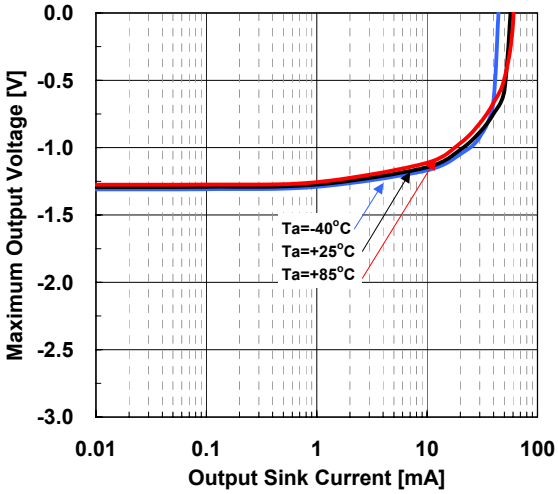
Maximum Output Voltage vs. Output Source Current

V^+/V^-=±1.35V,G_V=OPEN



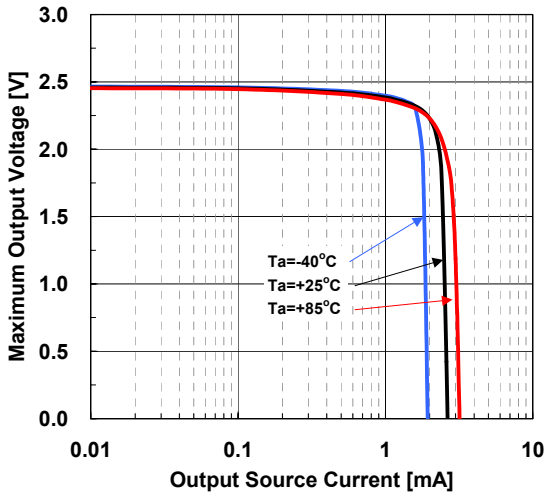
Maximum Output Voltage vs. Output Sink Current

V^+/V^-=±1.35V,G_V=OPEN



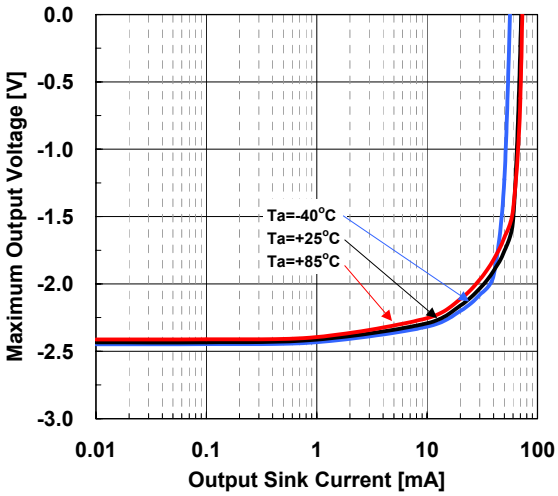
Maximum Output Voltage vs. Output Source Current

V^+/V^-=±2.5V,G_V=OPEN



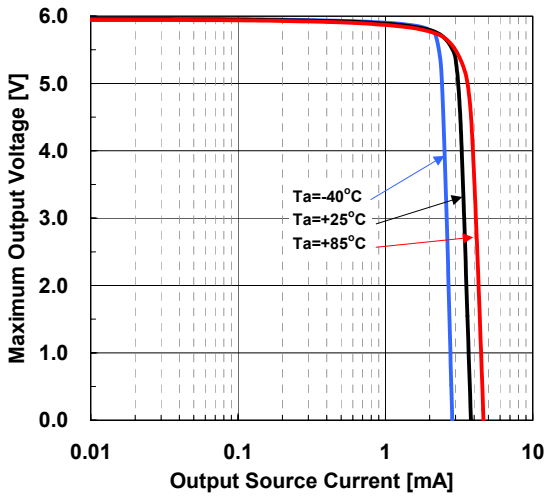
Maximum Output Voltage vs. Output Sink Current

V^+/V^-=±2.5V,G_V=OPEN



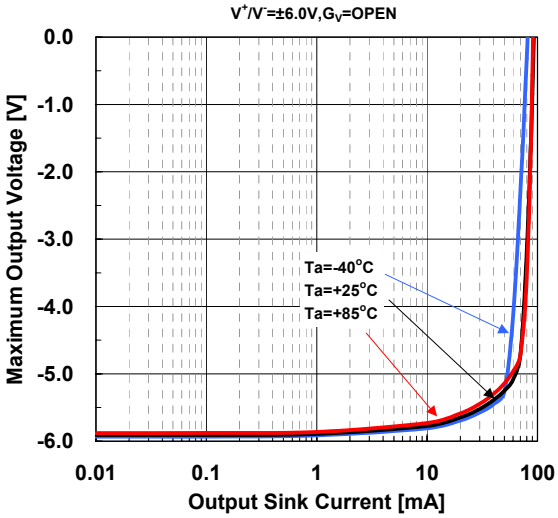
Maximum Output Voltage vs. Output Source Current

V^+/V^-=±6.0V,G_V=OPEN



Maximum Output Voltage vs. Output Sink Current

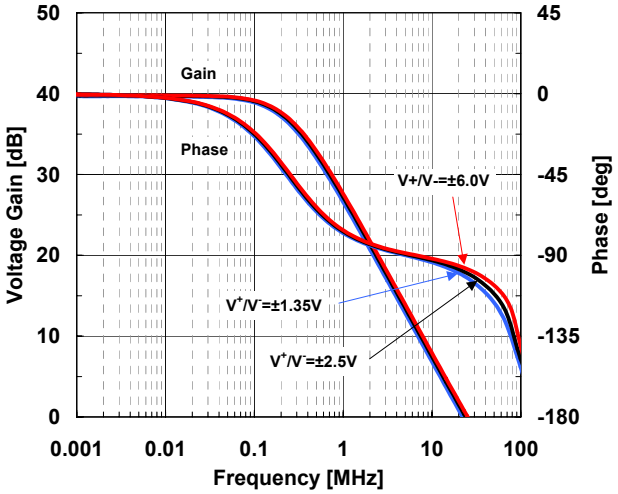
V^+/V^-=±6.0V,G_V=OPEN



■ Typical Characteristics

Voltage Gain/Phase vs. Frequency

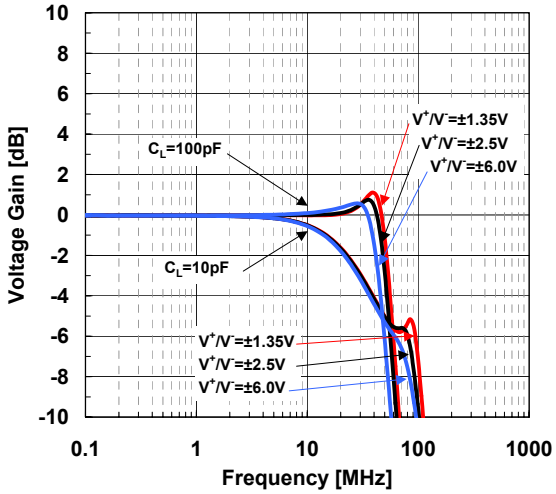
G_V=40dB, R_L=2kΩ to GND, C_L=10pF, Ta=25°C



Voltage Gain vs. Frequency

(Voltage Follower)

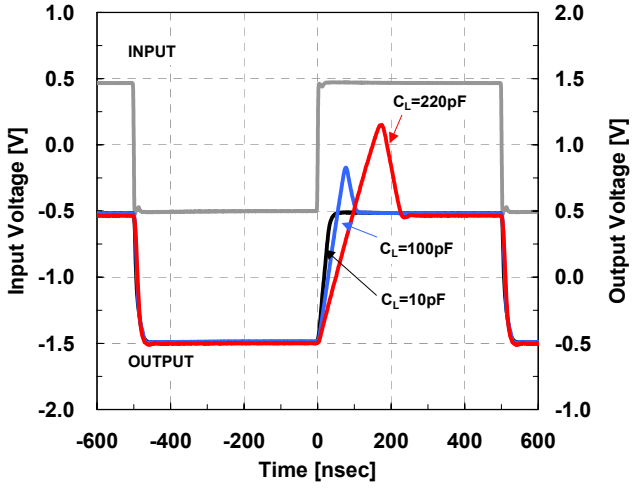
V^+/V^-,G_V=0dB, R_L=2kΩ to GND, Ta=25°C



Pulse Response

V^+/V^-=±1.35V,A_V=0dB,f=1MHz,V_{IN}=±0.5V,

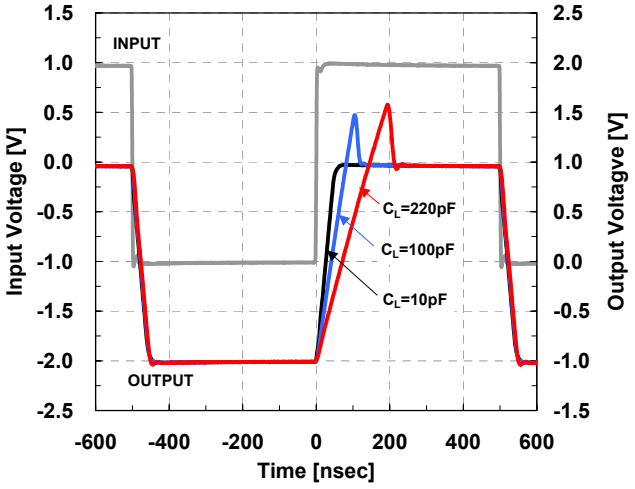
R_L=10KΩ,Ta=25°C



Pulse Response

V^+/V^-=±2.5V,A_V=0dB,f=1MHz,V_{IN}=±1V,

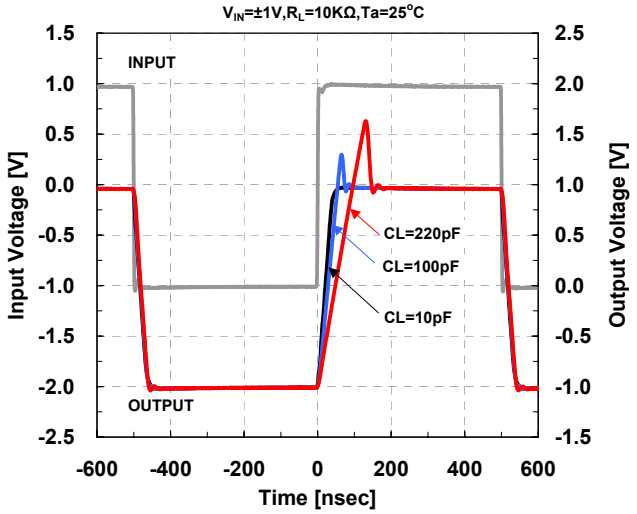
R_L=10KΩ,Ta=25°C



Pulse Response

V^+/V^-=±6.0V,A_V=0dB,f=1MHz,

V_{IN}=±1V,R_L=10KΩ,Ta=25°C



Mouser Electronics

Authorized Distributor

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NJM2717M-TE1 NJM2717RB1-TE1

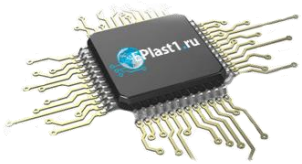
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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